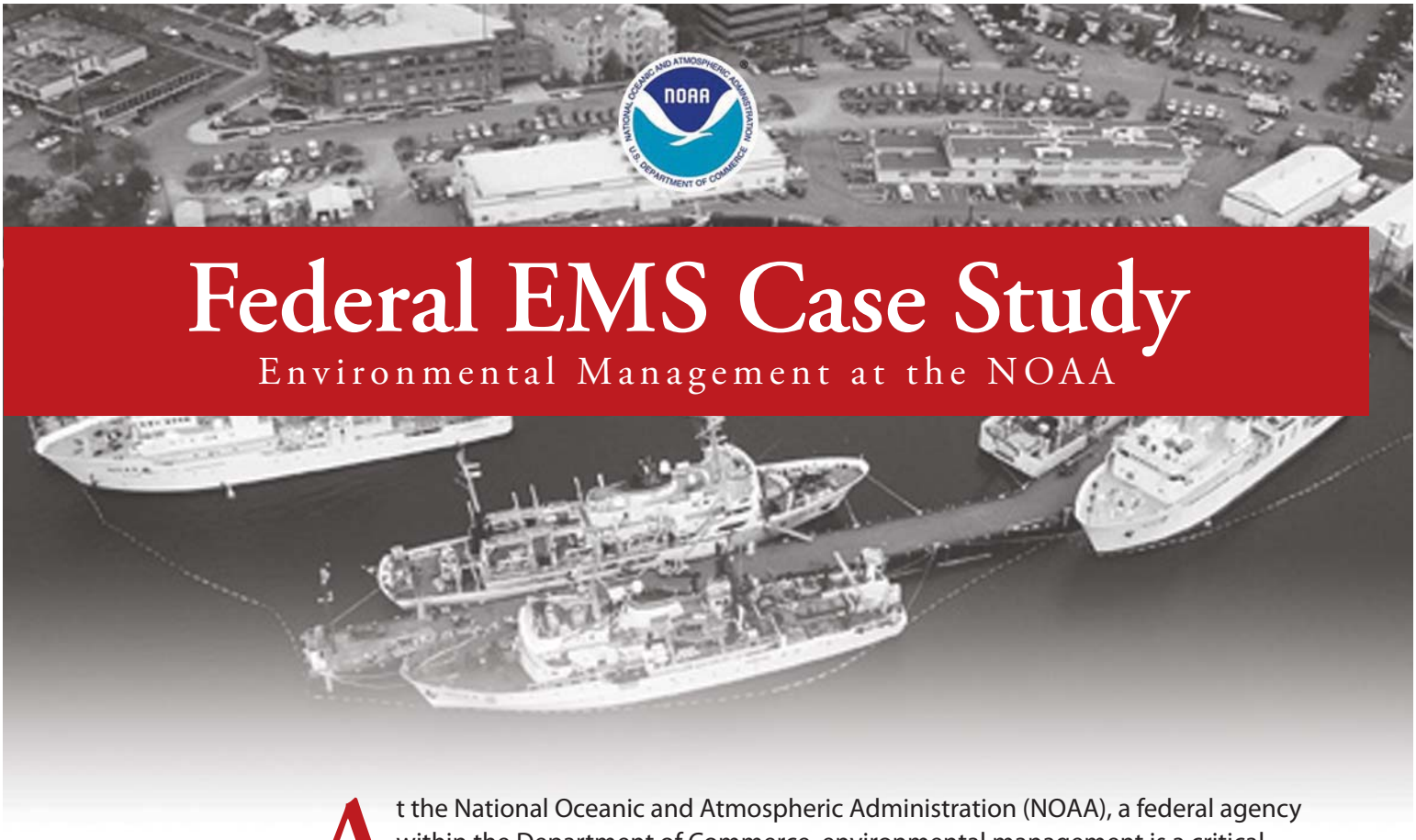

Federal EMS Case Study

Environmental Management at the NOAA

At the National Oceanic and Atmospheric Administration (NOAA), a federal agency within the Department of Commerce, environmental management is a critical feature of the organization's stated mission:

To understand and predict changes in the Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs.

NOAA's operations involve many issues, from oceans and fisheries to climate and weather. In 1999, NOAA developed goals to enhance environmental compliance in pursuit of mission objectives, key among them a goal to establish ISO 14001-based environmental management systems (EMSs). This initiative was reinforced soon thereafter with the signing of Executive Order (E.O.) 13148 "Greening the Government Through Leadership in Environmental Management" in 2000, requiring EMS implementation at federal facilities by the end of 2005.

NOAA initiated EMS implementation by ranking facilities based on the number of employees, square footage, proximity to waterways, environmental performance (i.e., number of violations), and environmental complexity (ranging from "low" for office space to "high" for laboratories). The exercise identified a list of 27 priority facilities, from which NOAA selected the Marine Operation Center (MOC) to begin pilot implementation of an EMS and develop tools and procedures that would assist in implementing EMSs throughout the agency. The pilot program ultimately proved instrumental in refining NOAA EMS standard protocols, promoting a process of continuous improvement and establishing a NOAA EMS team.

"The Marine Operations Center has led the way in ensuring our facilities and practices are safe and environmentally friendly as an important component of NOAA's environmental mission," said Rear Admiral Samuel P. De Bow Jr., director of NOAA's Office of Marine and Aviation Operations and NOAA Commissioned Officer Corps. "The President's Executive Order to establish environmental management systems government-wide will hold all federal agencies accountable for the effect of their daily activities on the environment and integrate this accountability into their decision-making processes."

EMS Pilot at NOAA's Marine Operations Center

MOC provides administrative, technical, and logistical support for NOAA's marine fleets and operates out of two locations. One facility in Seattle, Washington, supports ships in the Pacific Ocean (MOC-P) and the other facility in Norfolk, Virginia, supports ships in the Atlantic Ocean (MOC-A). MOC-P was the first to initiate EMS development, forming an internal EMS group in 2002. The EMS group worked with facility management and staff to define the scope of the EMS by assembling an inventory of standard procedures and associated environmental impacts. In the process, the group found many procedures that had never been formally documented. MOC-P utilized the EMS development process to establish formal work instructions to serve as standard operating procedures on ships and shore-based support facilities. Additionally, the group realized many of the facility's environmental impacts were managed through existing environmental compliance programs, such as the MOC-P's Washington State Pollution Prevention Plan and NOAA's Environmental Compliance and Safety Assessment System. Thus, MOC-P focused on integrating these initiatives into the facility's new EMS such that each program would complement and support the other.

Implementing EMS at MOC-P

Organization, communication, and collaboration proved to be the keys to successful EMS implementation at MOC-P. However, perhaps most critical to the program's initial success was a highly dedicated and motivated champion for environmental management. James Schell, Safety and Environmental Compliance Officer for MOC, played this role, pulling together the EMS working group at MOC-P and leading the EMS pilot program.

Under Mr. Schell's leadership, the EMS group established an implementation schedule and arranged for regular meetings, both among the group members and with MOC management. Regular communication helped keep implementation on schedule and ensure the input and support of upper management. MOC-P also maintained an implementation log to track progress, a helpful tool that evolved into a running journal that MOC-P uses to record document locations and note important developments or milestones. MOC-P also organized training sessions to help employees understand the facility's EMS and its implications for daily operation. The sessions were well-received and dramatically improved

employee awareness of EMS procedures. The MOC-P EMS group also worked with their counterparts at MOC-A and NOAA's national EMS team to develop EMS guidance documents (see box). Collaboration resulted in standardized EMS documents: simple, electronic forms made available online and recognized at all NOAA facilities.

EMS Impacts at MOC-P

On June 21, 2005, MOC-P became the first NOAA facility and the first facility within the Department of Commerce to self-declare compliance with E.O. 13148 (six months ahead of the December 31, 2005 deadline). EMS installation resulted in a number of process changes, significantly enhancing environmental protection and reducing waste generation.

MOC-P's EMS included new standard work instructions focused on minimizing environmental impacts of routine ship maintenance and repairs, such as potential contamination from paint and debris. The state of Washington typically requires ship owners to transfer vessels to dry dock locations for repair and maintenance. However, the Washington Department of Natural Resources reviewed MOC-P's new EMS operational controls and concluded the new standards went above and beyond regulatory requirements. As a result, the state granted permission for water-side ship repair and maintenance, saving MOC-P more than $100,000 in annual dry dock costs.

MOC-P's EMS also dramatically improved waste management. Employee outreach increased recycling rates and new operating standards extended the recycling program to cover additional materials, such as wood and metals. Additionally, MOC-P has transitioned to citrus-based paint solvents, which are less hazardous than conventional solvents and can be recovered and reused. Prior to EMS implementation, MOC-P generated approximately 1,800 pounds of non-acute hazardous waste annually, classifying the facility as a small quantity generator (SQG). MOC-P now generates an average of 150 pounds of non-acute hazardous waste each year and is considered a conditionally exempt small quantity generator (CESQG), which further reduces the facility's operating costs.

NOAA's EMS Guidance Documents

Below are the EMS reference materials developed and refined through the experience of EMS pilots at MOC:

EMS Manual

Comprehensive description of the system and key components, functions, and relationships, including:

-NOAAs environmental mission and values

-EMS guiding principles, structures, and standards

EMS Launch Guide

Management tool with guidance for planning meetings, forming EMS teams, and developing an implementation schedule.

EMS Implementation (Development) Guide

Collection of documents (tools, templates, and forms) to help facilities develop and implement an EMS.

MOC-A: Building on EMS Success at MOC-P

Coordination between the respective EMS teams allowed MOC-A to build on successful EMS implementation at MOC-P. Using the framework created for MOC's Pacific operations, MOC-A tailored a similar EMS for Atlantic operations and followed an implementation process similar to that of MOC-P. MOC-A included in its EMS many of the environmental aspects targeted by MOC-P but also adapted or expanded certain areas. For example, MOC-A identified specific energy use reduction targets, integrated Virginia state pollution prevention regulations, and focused its EMS on minimizing impacts to the Elizabeth River, the facility's adjacent waterway.

EMS implementation at MOC-A met with immediate success. Within the first few months, the facility had achieved an 18 percent reduction in monthly electricity use, far exceeding its initial target of 5 percent. Also, MOC-A incorporated advanced environmental protection measures designed to support watershed restoration and preservation efforts led by the Elizabeth River Project (ERP). In recognition of this commitment, ERP's River Stars program awarded MOC-A its highest rating, the three-star "Model Level," making it the only facility to achieve such status in its first year of participation.

Coordinated Efforts to Expand and Improve EMS at NOAA Facilities

Sharing the experience with each other enabled MOC's EMS teams to refine and improve NOAA's national standard documents and guidance for EMS development and implementation. Working with NOAA's national Safety and Environmental Compliance Office, MOC refined EMS tools (such as the EMS Manual and Development/Launch Guides), streamlined procedures into a 16-step process, and developed a Web site for easy access to all EMS information and forms.

This strong foundation enabled EMS implementation at other NOAA offices, such as the National Ocean Service (NOS) laboratories in North and South Carolina, Maryland, and Alaska. With the tools and procedures developed through MOC's EMS pilot, the NOS National Centers for Coastal Ocean Science (NOS-NCCOS) laboratories were able to develop, implement, and self-declare a compliant EMS within one year. As with each of the previous facilities to complete EMS installation, NOS-NCCOS contributed to the process of continuous improvement through mutual learning. While adapting the general EMS procedures to its facilities, NOS developed new Web-based training modules that were then made available to all NOAA locations.

Coordination and collaboration will be critical as NOAA implements EMS at other facilities with new challenges and complexities. EMS Web portals, monthly EMS team conference calls, and personal consultations among EMS coordinators will help NOAA build on successes at MOC and NOS-NCCOS and install EMSs at facilities such as the Western Regional Center with thousands of employees under multiple line offices.